LonWorks Gateway
MIM-B18

Air Conditioner
installation manual

imagine the possibilities

Thank you for purchasing this Samsung product.

Ⓔ DB98-32769A(1)

SAMSUNG

Safety Precautions

This installation manual describes how to install the LonWorks Gateway. For installation of other optional accessories, refer to the appropriate installation manual.

⚠ WARNING

- ◆ Read carefully this installation manual before installation and check if the LonWorks Gateway is installed correctly after installation.
- ◆ Do not attempt to install or repair this LonWorks Gateway by yourself.
- ◆ This LonWorks Gateway contains no user-serviceable parts. Always consult authorized service personnel for repairs.
- ◆ When moving, consult authorized service personnel for disconnection and installation of the LonWorks Gateway.
- ◆ Ensure that the wall is strong enough to support the weight of the LonWorks Gateway.
- ◆ Must install the LonWorks Gateway with rated power supply.
- ◆ The LonWorks Gateway must be installed according to the national electrical rules by an installation specialist.
- ◆ If you wish to uninstall the LonWorks Gateway, consult an authorized installation center.

⚠ CAUTION

- ◆ Do not use inflammable gases near the LonWorks Gateway.
- ◆ Do not install the LonWorks Gateway in a location where it will come into contact with combustible gases, machine oil, sulphide gas, etc.
- ◆ Avoid locations where acid/alkali solution or special spray is used.
- ◆ Choose a location that is dry and sunny, but not exposed to direct sunlight. Suitable temperature is between 0°C(32°F) and 39°C(102.2°F).
- ◆ Do not spill water into the LonWorks Gateway.
- ◆ Do not apply tensile strength to the cable to avoid cable damage.
- ◆ Do not press the buttons with a sharp object.
- ◆ Do not connect the power cable to the control terminal.
- ◆ If the LonWorks Gateway is installed in a hospital or other special places, it should not affect other electronic devices.

Contents

Before Installing the LonWorks Gateway

Checks before installation

1 LonWorks Gateway IP

- ◆ A public IP is needed to access the LonWorks Gateway over the internet.
  (One public IP is needed for each LonWorks Gateway)
- ◆ A private IP may be used if the LonWorks Gateway need not be accessed over the internet.

2 Network related equipments

3 Installation connection wire

- ◆ The LAN cable and the communication cables from centralized controllers/interface modules must be installed in such a way that the wires can be connected to the LonWorks Gateway with ease.

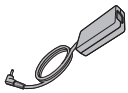
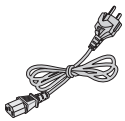
Note

- ◆ ***The LonWorks Gateway is a server and supports static IP. To access the LonWorks Gateway through the internet or with BMS System, the LonWorks Gateway address, which is the IP address, must be known.***
- ◆ ***A static IP service from an internet service provider must be used if xDSL (ADSL, VDSL) is being used for internet connection. (Static IP costs more than dynamic IP.)***

Accessories

Make sure you have each item. Supplied items may vary depending on your country or service provider.

Item	LonWorks Gateway
Quantity	1
Shape	

Adapter	Power cable	M4x16 Screw
1	1	6
		

User's manual	Installation manual	Cable tie
1	1	1
		

CAUTION

- ***The LonWorks Gateway must be installed by a trained installer.***
- ***Ensure the main power is turned off before installing the LonWorks Gateway.***
- ***Be sure to use adapter and power cable we provide.***
- ***The power cable and the communication cable must be installed according to the national electrical wiring regulations.***

Main Parts

LonWorks Gateway Exterior

LCD Display

Shows current time and IP address. Various messages will be displayed depending on button input.

LCD operation button

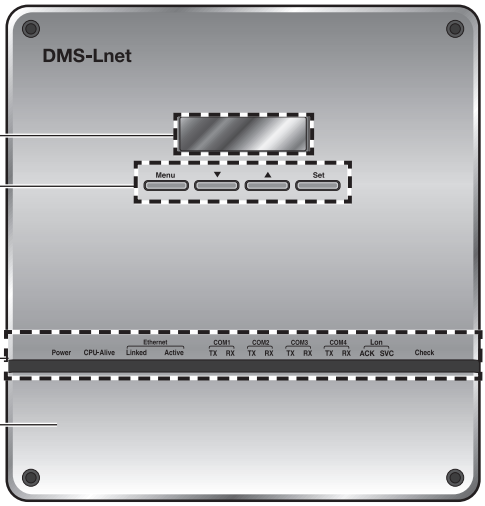
There are 4 buttons(Menu, ▼(Down), ▲(Up), Set) and you can access to menu and move, check the menu.

LED Indicator

Check 15 LED status such as Power, CPU-Alive, Ethernet-Linked/Active, COM1~4-TX/RX, Lon ACK, Lon SVC and Check.

LonWorks Gateway Bottom cover

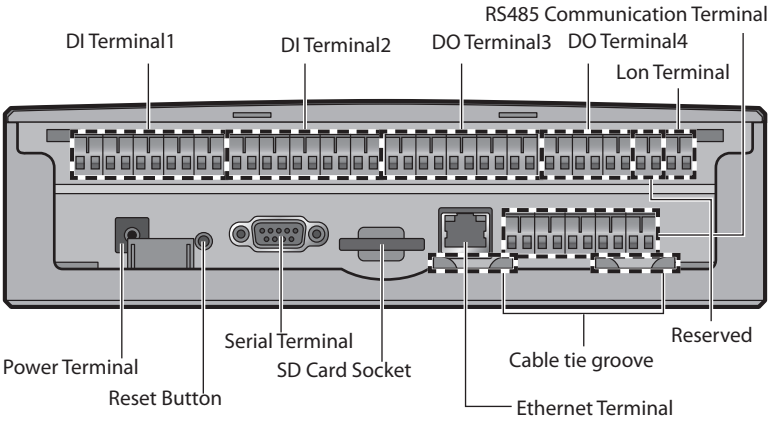
Unfasten 2 screws on the bottom and separate the bottom cover from LonWorks Gateway. Then check cable connection part.



LED Indicator

Item	Name	Status
Power	Power indicator	Turns blue when the power is supplied.
CPU Alive	CPU operation indicator	Blinks in orange with 1 second intervals during normal operation.
Ethernet–Linked	Internet connection indicator	Turns green during normal connection.
Ethernet–Active	Internet data transmission/reception indicator	Blinks in orange during normal transmission/reception.
COM1~4 – TX	Channel 1~4 Centralized controller/Interface module Data transmission Indicator	Blinks in green during normal transmission.
COM1~4 – RX	Channel 1~4 Centralized controller/Interface module Data reception Indicator	Blinks in green during normal reception.
Lon ACK	LonWorks data reception indicator	Blinks in green during normal reception.
Lon SVC	LonWorks device status indicator	Blinks in green during un-configured. - Needs commission by integration tool (Ex. LonMaker)
Check	Indoor/Outdoor unit/Communication check Indicator	Turns green when notice occurs.

LonWorks Gateway Cable Connection Part

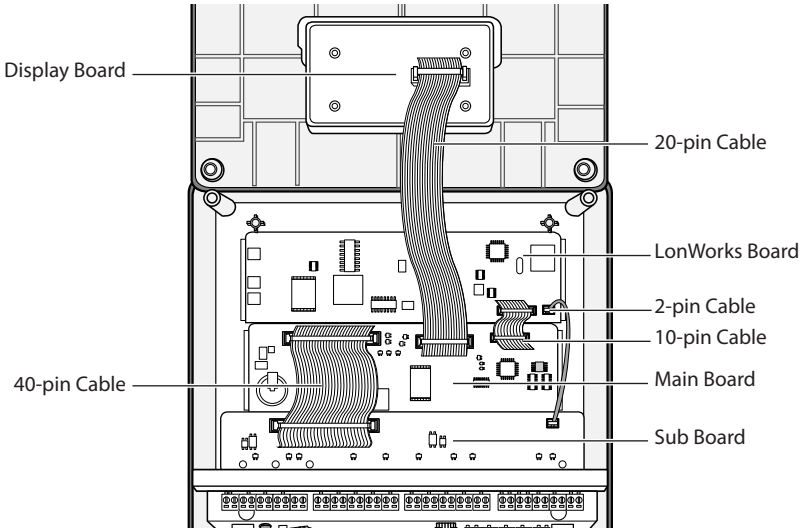


Name	Description
DI Terminal1	Digital Input connection terminal, Channel1~Channel5
DI Terminal2	Digital Input connection terminal, Channel6~Channel10
DO Terminal3	Digital Output connection terminal, Channel1~Channel5
DO Terminal4	Digital Output connection terminal, Channel6~Channel8
Lon Terminal	Terminal Block for LonWorks communication (TP/FT-10)
Reset Button	Reset LonWorks Gateway
Power Terminal	Connect LonWorks Gateway adapter
Serial Terminal	Service agent checks LonWorks Gateway error status using this terminal
SD card socket	Sub memory (for program update and set information saving) socket
RS485 Communication Terminal	Connect for RS485 communication with devices such as centralized controller/Interface module -COM1 ~ COM5
Ethernet Terminal	Connect LAN cable
Cable tie groove	Groove for arranging cables

Viewing the Parts (Continued)

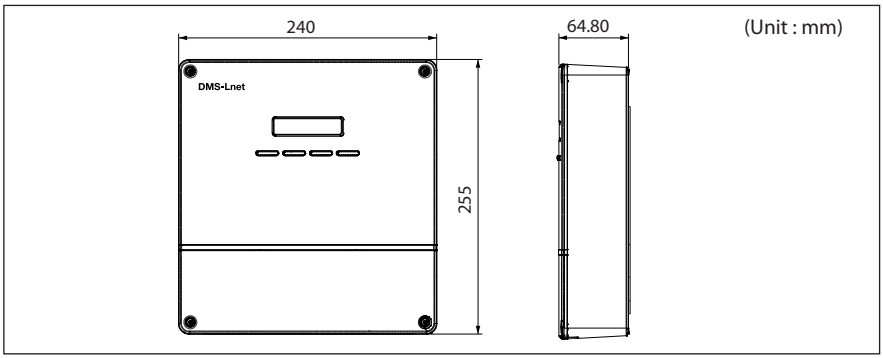
Main Parts

LonWorks Gateway Interior

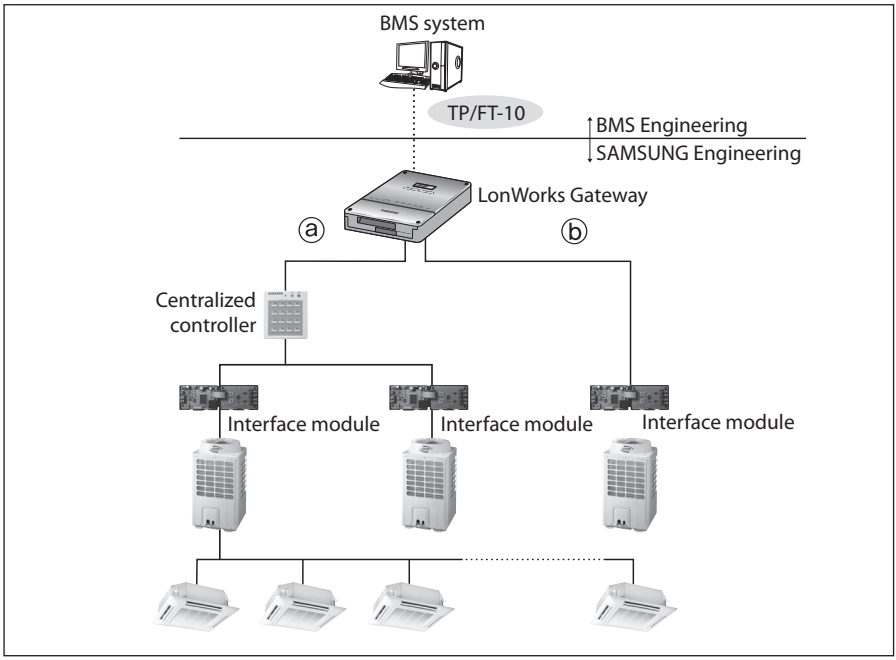


Note If you need external circuit configuration, consult with the manufacturer.

Product Dimensions



System Architecture



- Connecting centralized controller and LonWorks Gateway (ⓐ type)
  - You can control up to 16 centralized controllers and 128 indoor units using LonWorks Gateway.
- Connecting interface module and LonWorks Gateway(ⓑ type)
  - You can control up to 80 interface modules and 128 indoor units using LonWorks Gateway.
  *MAX.16 interface module can be connected to each of the RS485 communication channels of the LonWorks Gateway.
  - The more interface modules are connected, the longer time takes for tracking.

CAUTION

- ***When connecting centralized controller and interface module to the LonWorks Gateway of same communication channel, only one of them will communicate according to the communication channel mode setting of [System Settings]-[Tracking]. Therefore, do not connect the centralized controller and interface module to the same communication channel.***
- ***If you set the communication channel mode as interface module, virtual centralized controller address will be assigned.***

Compatible Devices

No	Devices	Model	Note
1	Indoor Unit Outdoor Unit	All System indoor/outdoor units such as: DVM, DVM PLUS, DVM PLUS II, DVM PLUS III, mini DVM, CAC Series	-
2	Centralized Controller	MCM-A202, MCM-A202A, MCM-A202B	-
3	SIM/PIM	MIM-B12/MIM-B16	Needed for EHP power distribution
4	Interface module	MIM-B04A (DVM, DVM PLUS, etc.) MIM-B13 (DVM PLUS II, etc.) MIM-B13A (DVM PLUS II/ DVM PLUS III, etc.) MIM-B13B	-
5*	Watt-hour Meter	RS485 comm. type	Connect with SIM Needed for power distribution (Please consult Samsung for compatible power meters)
		Pulse type	Connect with PIM (Refer to PIM installation manual for the detailed specification of pulse type watt-hour meter.)

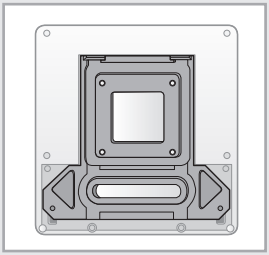
❊ Products with '* ' are not Samsung products and must be purchased separately.
(Only selected power meters may be used for protocol compatibility issues.)

❊ Samsung is not responsible for BMS engineering which creates each device and objects.
For further directions regarding on BMS engineering, consult with specialized BMS related vendor.

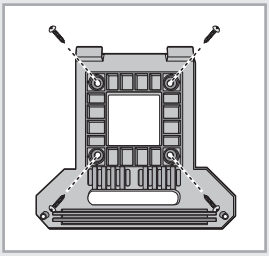
Maximum Devices Attachable

Devices	Max.	Note
Indoor Unit	128	Tracking error occurs if exceeded
Centralized Controller	16	Must not exceed 16 units
Interface module	128	16 units per 1 channel, total 80 units are connectable when connecting interface module to LonWorks Gateway directly (128 units are connectable when using centralized controller)
SIM/PIM	8	Up to 8 units are connectable
Watt-hour Meter	64	8 units are connectable per 1 SIM/PIM

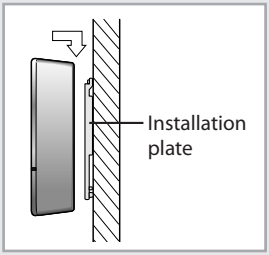
Installing the LonWorks Gateway



1 Separate the installation plate on the rear side of LonWorks Gateway.

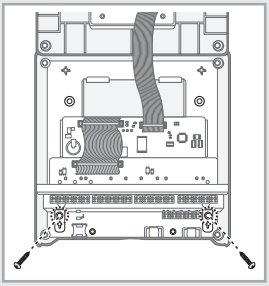


2 Fix the installation plate on the wall using 4 screws.

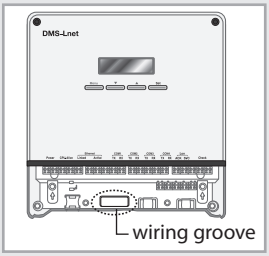


3 Hang the LonWorks Gateway on the groove which is on the top of the installation plate.

4 Fix the installation plate and LonWorks Gateway using 2 screws.



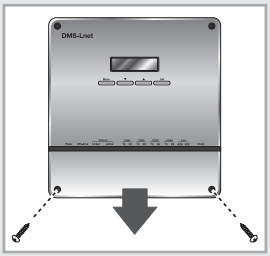
5 If you install LonWorks Gateway inside of the wall or wiring from the rear side is needed, use wiring groove on the bottom of LonWorks Gateway.



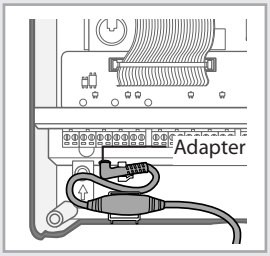
CAUTION

To prevent breakdown and damage of LonWorks Gateway, and for safe usage, it is recommended to install LonWorks Gateway on the wall.

Connecting Centralized Controller

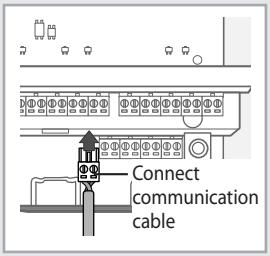


1 Unfasten the 2 screws on the bottom of the LonWorks Gateway front cover. Hold the bottom 2 sides of the LonWorks Gateway and push downwards to slide open the cover.

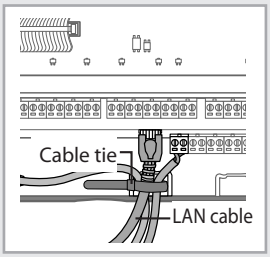


2 Connect the adapter to the power terminal.

◆ Arrange the adapter as the right figure.



3 Separate 1 terminal block from 5 terminal blocks which are attached to RS485 communication terminal.
Then, connect centralized controller communication cable (C1, C2) to the terminal block.(C1↔A, C2↔B)



4 Connect LAN cable to the Ethernet terminal of LonWorks Gateway. Then arrange it using cable tie.

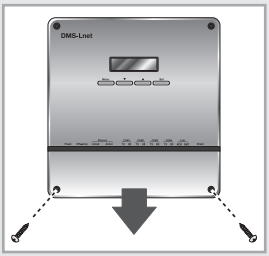
5 Fasten the bottom cover of LonWorks Gateway and fix it using 2 screws.

CAUTION

Maximum 16 centralized controllers can be connected to one LonWorks Gateway.

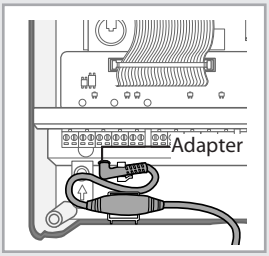
Connecting Interface Module

1 Unfasten the 2 screws on the bottom of the LonWorks Gateway front cover. Hold the bottom 2 sides of the LonWorks Gateway and push downwards to slide open the cover.

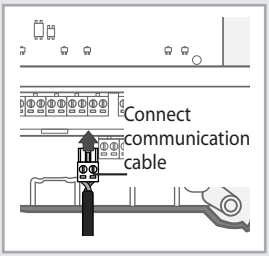


2 Connect the adapter to the power terminal.

◆ Arrange the adapter as the right figure.

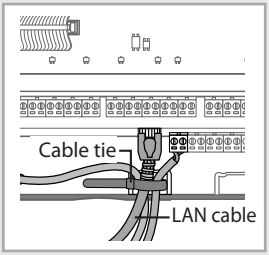


3 Separate 1 terminal block from 5 terminal blocks which are attached to RS485 communication terminal.
Then, connect interface module communication cable(R1, R2) to the terminal block.(R1↔A, R2↔B)



4 Connect LAN cable to the Ethernet terminal of LonWorks Gateway. Then arrange it using cable tie.

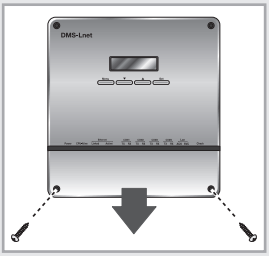
5 Fasten the bottom cover of LonWorks Gateway and fix it using 2 screws.



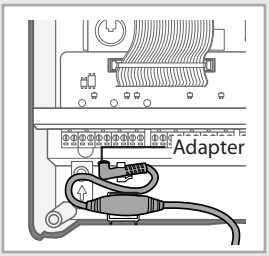
CAUTION

Maximum 80 interface modules can be connected to one LonWorks Gateway.

Connecting SIM

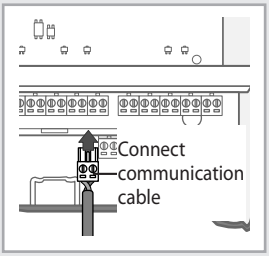


1 Unfasten the 2 screws on the bottom of the LonWorks Gateway front cover. Hold the bottom 2 sides of the LonWorks Gateway and push downwards to slide open the cover.

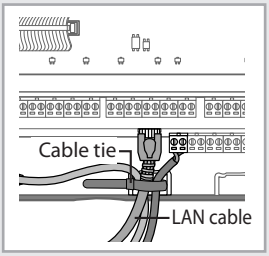


2 Connect the adapter to the power terminal.

◆ Arrange the adapter as the right figure.



3 Separate 1 terminal block from 5 terminal blocks which are attached to RS485 communication terminal.
Then, connect SIM communication cable (C1, C2) to the terminal block. (C1↔A, C2↔B)



4 Connect LAN cable to the Ethernet terminal of LonWorks Gateway. Then arrange it using cable tie.

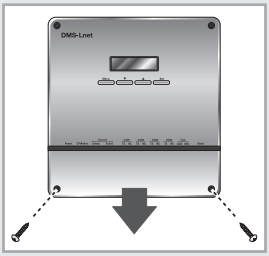
5 Fasten the bottom cover of LonWorks Gateway and fix it using 2 screws.

CAUTION

Maximum 8 SIM units can be connected to one LonWorks Gateway.

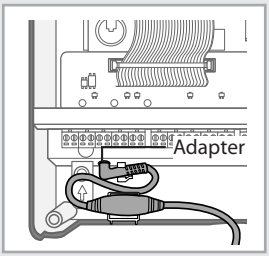
Connecting LonWorks

1 Unfasten the 2 screws on the bottom of the LonWorks Gateway front cover. Hold the bottom 2 sides of the LonWorks Gateway and push downwards to slide open the cover.

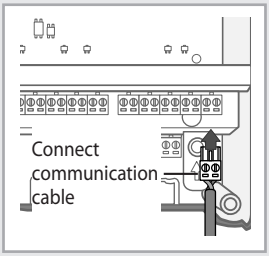


2 Connect the adapter to the power terminal.

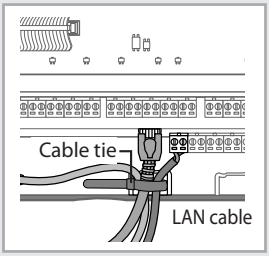
◆ Arrange the adapter as the right figure.



3 Separate Lon terminal block. Then, connect LonWorks communication cable to the terminal block.



4 Connect LAN cable to the Ethernet terminal of LonWorks Gateway. Then arrange it using cable tie.



5 Fasten the bottom cover of LonWorks Gateway and fix it using 2 screws.

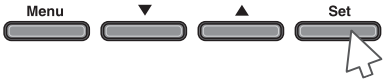
CAUTION

LonWorks communication cable should use the cable which fits to the specification provided by Echelon.

Commision

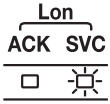
Commision using Service Pin

To activate the Service Pin, press and hold [SET] button for more than three seconds while time is displayed in the LCD Display window of the front side of LonWorks Gateway.



Press and hold the [SET] button
for more than 3 seconds.

When you press Service Pin, Neuron ID will be sent and [SVC] LED of the front panel will be lit up for a second.



CAUTION

You should correctly set up a network according to the installation and communication environment and set the data processing system in advance.
This Gateway provides data for 128 indoor units. However, the connectable number of indoor units can be different according to the number of items, communication cycle or operating environment.
Do not connect a device requiring urgent control in the same network.

Control and Monitoring Item

• Functional classification by a device.

The functions provided can be different according to the type of the connected device.

No	NV Name	Remarks	Indoor	ERV	AHU Kit
1	nviOnOff	ON/OFF command	O	O	O
2	nviApplicMode	Setting operating mode	O	X	O
3	nviSetpoint	Setting desirable temperature	O	X	O
4	nviFanStatus	Setting wind speed and direction	O	O	X
5	nviERVMode	Setting ERV operation mode	X	O	X
6	nviFilterReset	Filter reset command	O	O	O
7	nviUserLockout	Setting the restriction of remote control use	O	O	O
8	nviOccOpMode	Setting cooling only mode / Setting heating only mode	O	X	O
9	nviCoolTempLock	Setting the low temperature limit	O	X	O
10	nviHeatTempLock	Setting the high temperature limit	O	X	O
11	nvoSpaceTemp	Display indoor temperature	O	X	O
12	nvoApplicMode	Display operating mode	O	X	O
13	nvoSetpoint	Display desire temperature	O	X	O
14	nvoOnOff	Display ON/OFF status	O	O	O
15	nvoFanStatus	Display wind speed and direction	O	O	X
16	nvoERVMode	Display ERV operating mode	X	O	X
17	nvoErrorCode	Display Error code	O	O	O
18	nvoDeviceAlarm	Remote control Lock, Filter Sign, Thermo ON/OFF, Error occurrence status display	O	O	O
19	nvoOccOpMode	Cooling only/Heating only setup status display	O	X	O
20	nvoCoolTempLock	Low temperature limit setting status display	O	X	O
21	nvoHeatTempLock	High temperature limit setting status display	O	X	O
22	nvoUserLockout	Display the restriction of remote control use	O	O	O
23	nvoEnergyConp	Display electricity usage (Time Period)	O	X	X
24	nvoEnergyCon	Display electricity usage (Basic date)	O	X	X
25	nvoRuntimep	Display used hours (Period)	O	X	O
26	nvoRuntime	Display used hours (Basic date)	O	X	O
27	nvoDevListDesc	The summary of device information (Model, Address, Operation Status)	O	O	O

Installing the LonWorks Gateway (Continued)

- Although the LonWorks Gateway can connect 128 units, the actual number of available items can differ according to the number of indoor units connected.
  When the number of indoor units is increased, the number of controllable items will be decreased; on the other hand, as the number of indoor units decreases, the controllable items increase.

The functions provided can be different according to the type of the connected device.

Control and Monitoring Item	The maximum number of connectable indoor units.	Remarks
27 items (All)	22	In the case that 20 items can be processed per a second and data inquiry interval is 30 seconds.
20 items	30	
15 items	40	
12 items	50	
9 items	64	
6 items	100	
4 items	128	

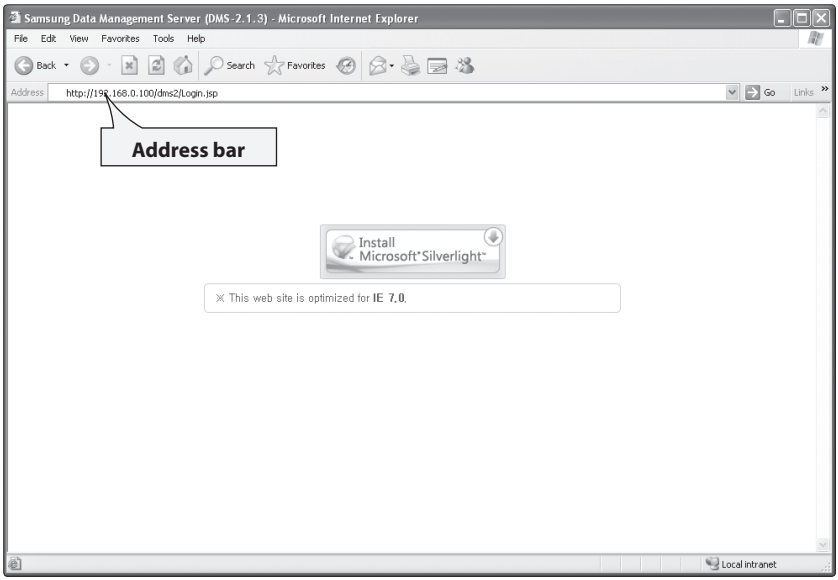
- You can freely choose the items.
- The number of items that can be processed will be different according to the time interval that inquires about data at Human Machine Interface. LonWorks Gateway can process 20 items of Acknowledged Service Type per a second. Therefore, the amount of data that can be processed is decided according to how frequently HMI inquires about the data and the number of indoor units that can be connected is decided by this amount of data.

  * For example : In the case that HMI inquires about the 27 items of Acknowledged Service Type by an indoor unit.
  When HMI inquires for data at 30 seconds interval, 22 indoor units can be connected, at 60 seconds interval 44 indoor units can be connected, at 120 seconds interval 88 indoor units can be connected.

- The renewal cycle can be different according to the provided NV.

Setting the LonWorks Gateway

LonWorks Gateway Connection and Login

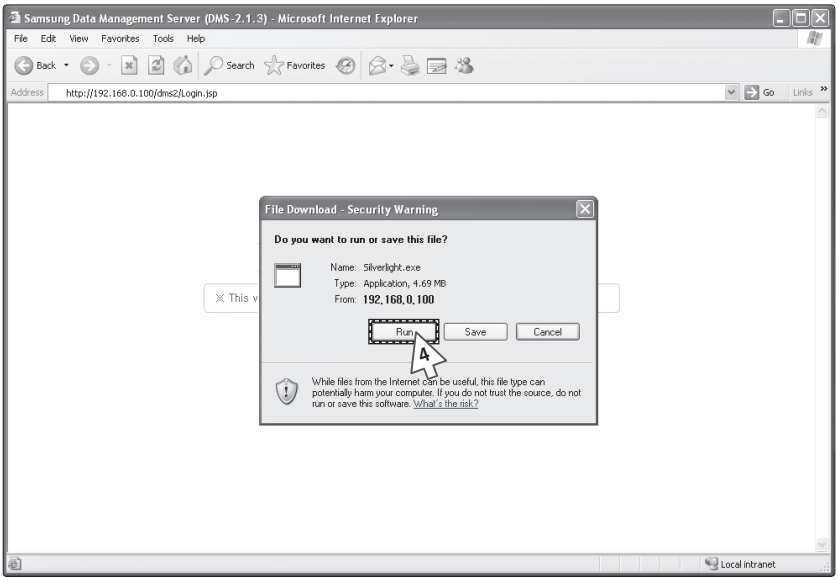


1 Click internet explorer icon( ) twice on your computer.

2 When internet explorer window appears, enter IP address **(http://192.168.0.100)** on the address bar then press [ENTER].

3 If it is the first time to access LonWorks Gateway, "Install Microsoft Silverlight" message will appear.

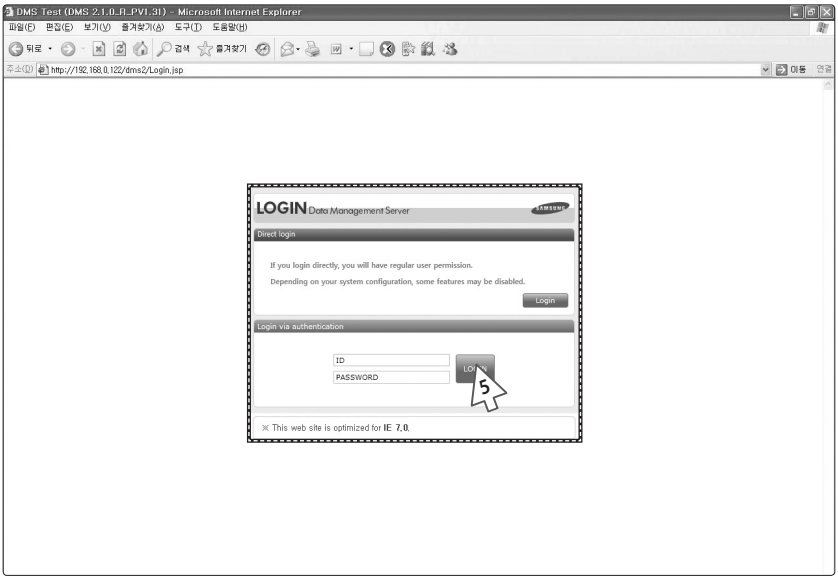
◆ If Microsoft Silverlight have already installed, the screen will not appear.



4 Click [Run] button and continue installation.
After installation, access to LonWorks Gateway again.

CAUTION

Silverlight operates normally with Windows XP SP2 or later version. It may not operate normally with previous version of Windows.



5 Enter ID and password when LonWorks Gateway main web page appears, Then click [LOGIN]. If you click [Connect], you will be logged in with general user's authority level.

- ◆ If you use accounts with general authorization level to login, you cannot use the LonWorks Gateway settings.
- ◆ Depending on authorization level set by the administrator, access to some functions may be restricted.
- ◆ You can change authorization level settings from **System settings → User authorization management**.
- ◆ To use the LonWorks Gateway functions, you must login with the ID that is included in administration group. Factory default LonWorks Gateway ID is 'admin' and password is '1234'.

Note

- ◆ ***Only authorized users can access to web page.***
- ◆ ***Connection speed may slow down. Fewer than 5 concurrent users are recommended.***
- ◆ ***LonWorks Gateway manager should change ID and password for security and management.***
- ◆ ***Logout: If you want to logout, click [LOGOUT] on the top of the menu. LonWorks Gateway will be ended.***

CAUTION

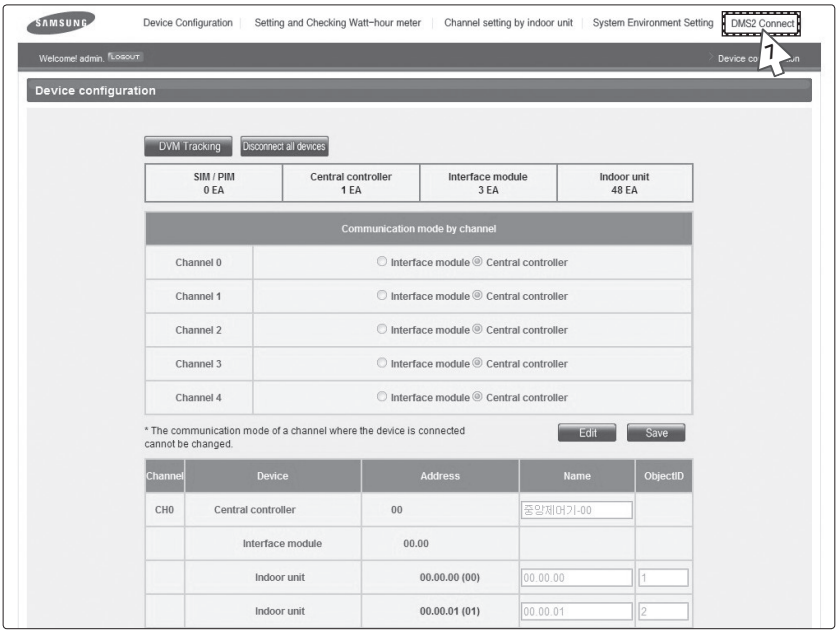
- ◆ ***If you use accounts with authorization level lower than management group or accounts with general authorization level, you cannot access LonWorks Gateway settings.***
- ◆ ***If you cannot access LonWorks Gateway, consult the manager.***

Setting the LonWorks Gateway (Continued)

6 If you login successfully, 'Control and Monitoring' screen of DMS2 will appear.
Click [System Setting]➔[LonWorks configuration] menu to switch to LonWorks Gateway.

CAUTION

- ***If you use accounts with authorization level lower than management group or accounts with general authorization level, LonWorks configuration will not be displayed on the menu.***
- ***If the LonWorks configuration menu does not appear, consult the manager.***

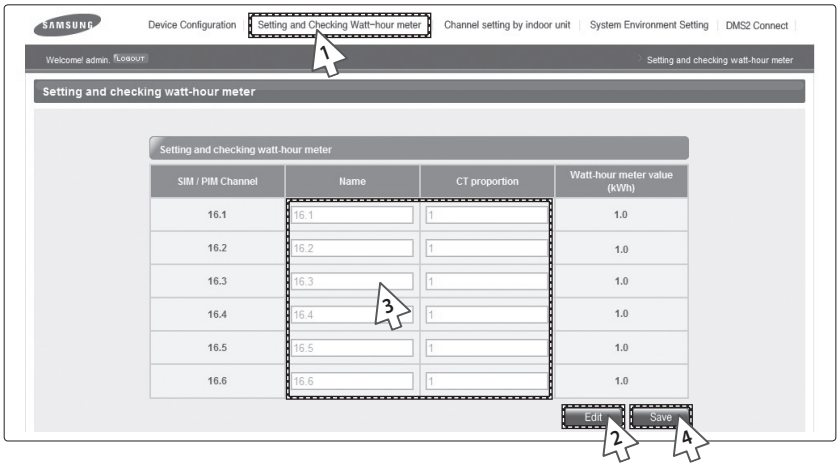


7 If you access LonWorks Gateway, 'Device Configuration' screen will appear initially.

◆ If you click [DMS2 Connect] button, screen will be switched to initial screen of the DMS2.

Reading EHP Watt-hour Meter

Setting and checking watt-hour meter



1 Click [Setting and Checking Watt-hour meter].

- ◆ You can change settings on watt-hour meter only when SIM interface module is connected.

2 Click [Edit] from the 'Setting and checking Watt-hour meter' screen.

- ◆ CT proportion is set to '1' as factory default value.

3 Set the [Name] and [CT proportion] for the watt-hour meter.

- ◆ You can use maximum 16 letters for name and only available special characters are ".", ",", "_", "-", and "space".
- ◆ Value for CT proportion should be integer between range of 1 ~ 5000.

4 Click [Save].

- ◆ Changed settings will be saved to the LonWorks Gateway.
- ◆ If you do not click [Save] changed setting will not be saved.

5 Watt-hour meter value will display the actual value of electricity on the corresponding watt-hour meter. Value will be updated automatically.

CAUTION

When using CT watt-hour meter, be careful that there can be difference with actual power consumption as much as CT ratio error.

Monthly baseline setting

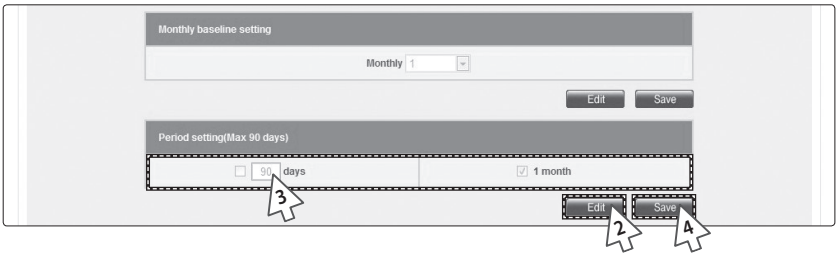
1 Click [Setting and Checking Watt-hour meter].

2 Click [Edit] from the 'Monthly baseline setting' screen.
- ◆ You can make changes when list box enables.

3 Set the Monthly baseline setting.
- ◆ You can select from 1~31.
- ◆ If you select the last day of the month, it will automatically set the last day of corresponding month as baseline.
  Ex) Last day of February: 28th or 29th

4 Click [Save].
- ◆ Changed settings will be saved to the LonWorks Gateway.
- ◆ If you do not click [Save] changed setting will not be saved.

Period setting



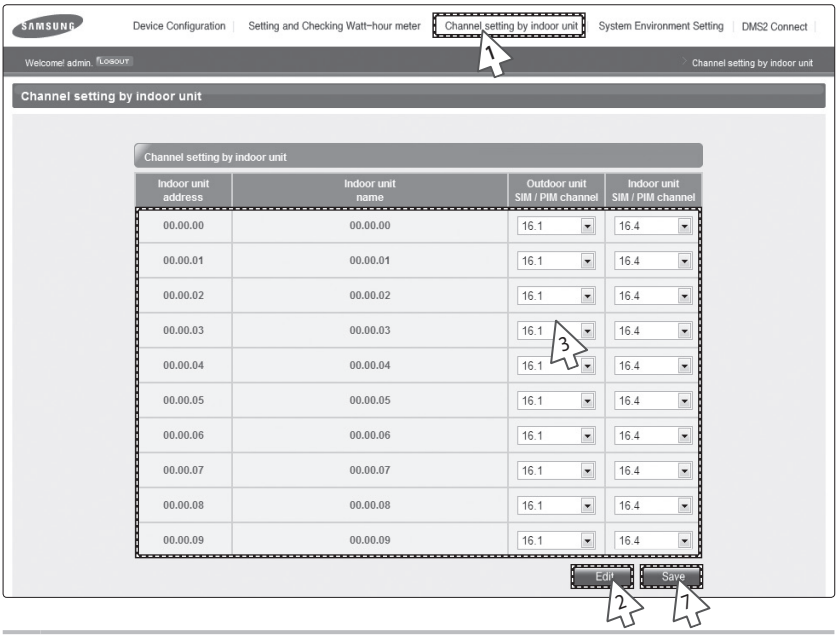
1 Click [Setting and Checking Watt-hour meter].

2 Click [Edit] from the 'Period setting' screen.
- ◆ You can select checkbox to set period in daily or monthly unit.
- ◆ If you select daily period setting, text box will be enabled and you can enter the period in daily unit.
- ◆ If you select monthly period setting, you can select the period in monthly unit.

3 Set the period
- ◆ If you set period in daily unit, you can set up to maximum 90 days.
- ◆ If you set period in monthly unit, you can set up to maximum 1 month.

4 Click [Save].
- ◆ Changed setting will be saved to LonWorks Gateway.
- ◆ If you do not click [Save], changed setting will not be saved.

Channel setting by indoor unit



1 Click [Channel setting by indoor unit].

2 Click [Edit] from the 'Channel setting by indoor unit' screen.

3 Check the address and the channel information of the SIM/PIM interface module which is connected to the watt-hour meter.

◆ If the SIM/PIM interface modules with addresses 0 ~ 7 executes tracking, it will be displayed as 16~23 in LonWorks Gateway.

4 Check the information of indoor/outdoor unit which is connected to watt-hour meter.

Reading EHP Watt-hour Meter (Continued)

5 Check the SIM/PIM interface module channel (Watt-hour meter) information of indoor/outdoor unit.

- ◆ You can set the channel when SIM/PIM interface module is installed in LonWorks Gateway.
- ◆ When the indoor unit's power is supplied from outdoor unit, set the 'Outdoor unit SIM/PIM channel' information only. ('Outdoor unit SIM/PIM channel' is referring to watt-hour meter which is connected to outdoor unit.)
- ◆ When the indoor unit's power is supplied from source other than outdoor unit, set the 'Outdoor unit SIM/PIM channel' and 'Indoor unit SIM/PIM channel' information. ('Indoor unit SIM/PIM channel' is referring to watt-hour meter which is connected to indoor unit.)
- ◆ Power distribution will be executed automatically. User does not need to check the value of watt-hour meter.

6 Set indoor unit to execute power distribution.

- ◆ If you do not set the watt-hour meter information, the power distribution result of the indoor unit will be displayed as '0'.

7 Click [Save].

- ◆ Changed setting will be saved to LonWorks Gateway.
- ◆ If you do not click [Save] changed setting will not be saved.

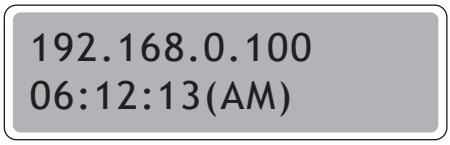
⚠ CAUTION

- ◆ ***Information of watt-hour meter connected to indoor/outdoor unit should be accurate. If the watt-hour meter information is not accurate upon setting the channel information of indoor unit, error may occur in the power distribution result.***
- ◆ ***You must set SIM/PIM channel information in the indoor unit if you want to execute power distribution. If not, it means that you do not execute power distribution and the power distribution result of the indoor unit will be '0'.***
- ◆ ***If the information of watt-hour meter connected to indoor/outdoor unit is changed, consult with installation enginner.***
- ◆ ***LonWorks Gateway executes power distribution based on set information.***

System Setting Initialization

1 Press [Menu], [▲], [▼] or [Set] from the screen where IP and current time is displayed.

- ◆ Main menu screen appears.
- ◆ Initialization is not possible in the screen where time information is displayed.

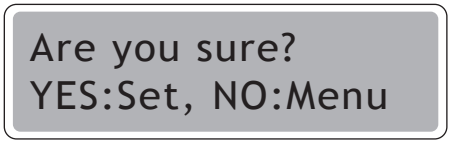


2 Press [Menu] ➔ [▼] ➔ [▲] ➔ [▼] ➔ [Menu] buttons in order from the main menu screen.

- ◆ Caution will be displayed on LCD Display.

3 Initialize LonWorks Gateway by clicking [Set] when caution phrase appears.

- ◆ If you press [Menu] button, system will return to main menu without initialization.



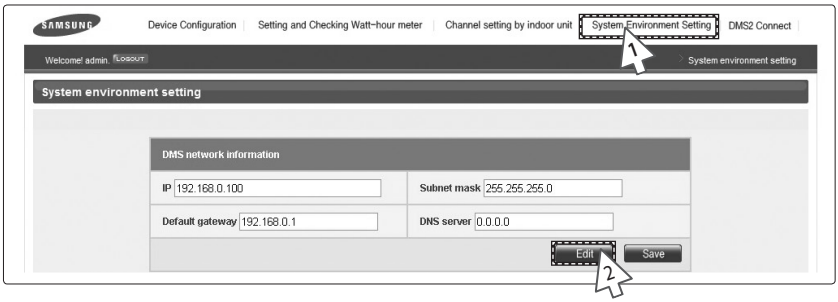
CAUTION

When initializing system setting, all saved data in LonWorks Gateway will be deleted. After initialization, you must aware that the saved data and IP address will be reset to default factory setting.

System Environment Setting

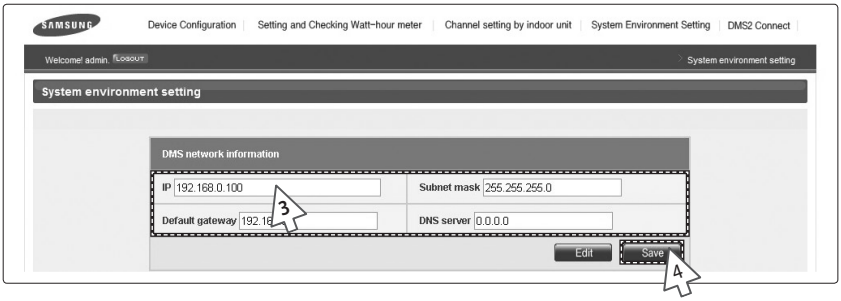
◆ You can set and check information about LonWorks Gateway installation and operation.

DMS network information



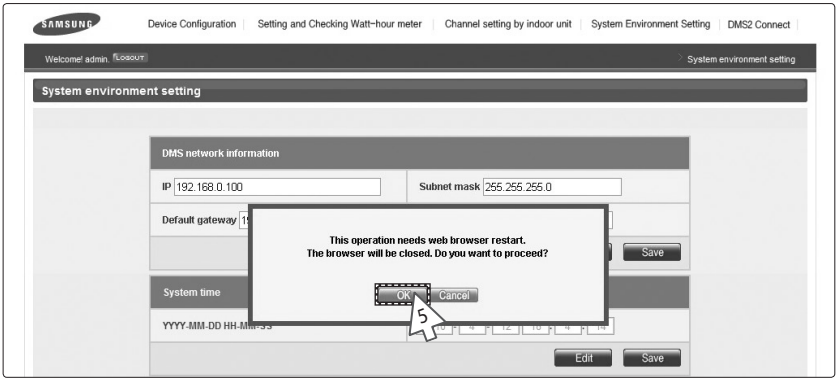
1 Click [System Environment Setting].

2 Click [Edit] from the 'DMS network information' section.



3 When text boxes of IP, Subnet mask, Default gateway and DNS server are enabled. Enter values for each item.
- ◆ 15 letters can be entered for each item.
- ◆ Each item should match with the network address form.

4 Click [Save] button on the 'DMS network information' section.



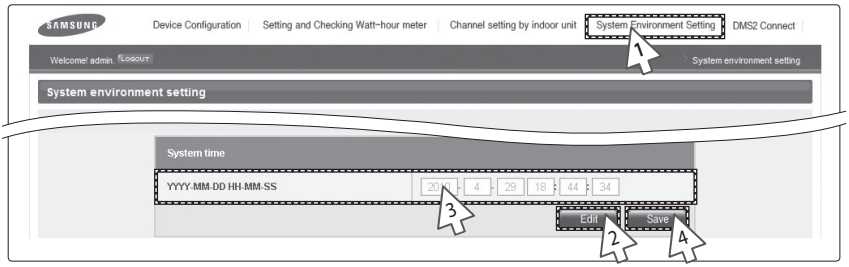
5 When the pop-up window appears, click [OK].

6 If you click [OK], current internet explorer will be closed. Then you may run the web browser again and access to LonWorks Gateway by entering the IP set and saved manually.

Note

- ◆ ***Factory setting is as follows.***
  1. IP address: 192.168.0.100
  2. Subnet mask: 255.255.255.0
  3. Default gateway: 192.168.0.1
  4. DNS server: 0.0.0.0
- ◆ ***Since LonWorks Gateway sets 192.168.0.254 as engineering IP internally, it should be always available regardless of current IP.***
- ◆ ***If several LonWorks Gateways are connected to single website, there can be IP crash because same service engineer IP(192.168.0.254)is applied to each LonWorks.***
  In this case, edit the service engineer IP by following below instructions and then use the IP.
  1. Run DOS command window by entering "cmd" from Windows "Start → Run".
  2. Access to DMS by running "telnet 192.168.0.254"from DOS command window.
  3. Enter ID/PASSWORD.
  4. Edit "sysenv" file (IP setting related file) as below.
  - Run "sudo vi /mnt/nand0/config/sysenv" from telnet connection screen.
  - Find"IP2=192.168.0.254"and edit the IP as you want.
  ※ Basic commands
  'i'- Modification is possible after entering
  'x'- Delete
  Esc + ":wq" – End after saving.
  - Restart
  5. After editing you may access LonWorks Gateway with changed IP.
  ※ There can be IP (192.168.0.254) crash if you execute above procedure when several DMS units are connected. To check accurate operation, change the service IP after installing each LonWorks Gateway.

System time

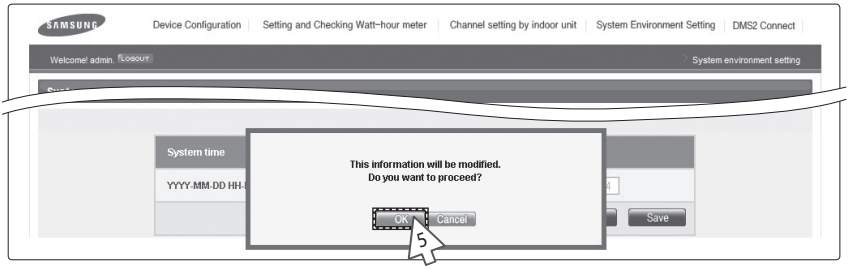


1 Click [System Environment Setting].

2 Click [Edit] from the 'System time' section.

3 Enter system time when text boxes enables.
- ◆ You can only enter numbers.
- ◆ Year: You can enter from 1980 to 2035.
- ◆ Month: You can enter from 1 to 12.
- ◆ Day: You can enter from 1 to 31.
- ◆ Hour: You can enter from 0 to 23.
- ◆ Minute: You can enter from 0 to 59.
- ◆ Second: You can enter from 0 to 59.

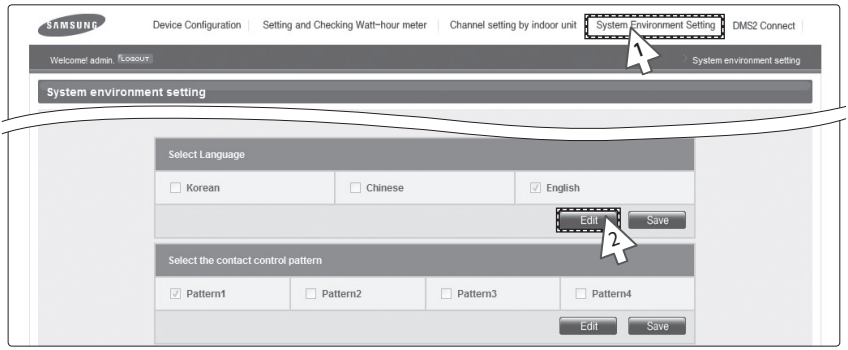
4 Click [Save] button on the 'System time' section.



5 When the pop-up window appears, click [OK].
- ◆ When message with "Reading data from DMS. Please wait" appears saving is completed. Then, 'System Environment Setting' screen appears again with all items disabled.

Note ***System time reflects set current value.***

Selecting the language



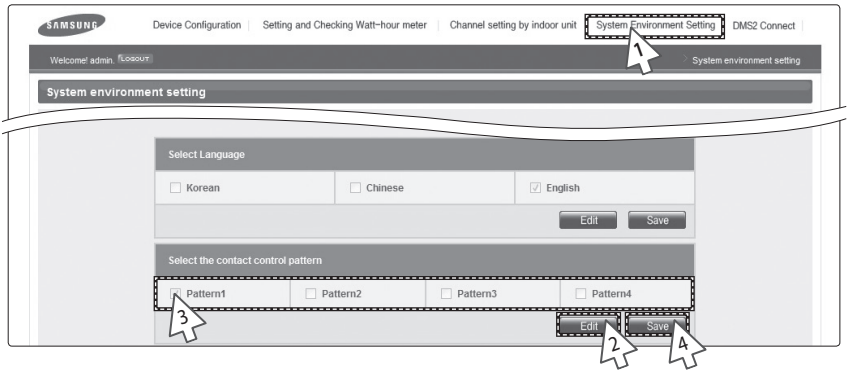
1 Click [System Environment Setting].

2 Click [Edit] from the 'Select language' section.

3 Select a language you want and click [Save].

4 When the pop-up window appears, click [OK]. LonWorks Gateway will restart and the system will be changed to selected language.

Selecting the contact point control pattern

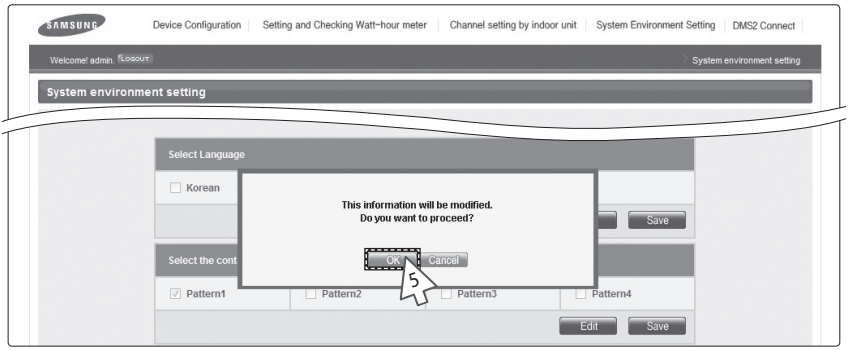


1 Click [System Environment Setting].

2 Click [Edit] from the 'Select the contact point control pattern' section.

3 Select the pattern you want to check when checkboxes enables.
- ◆ Pattern 1: No operation will be made when inputting contact control signal.
- ◆ Pattern 2[Level (Emergency stop)]: Commands to stop all operation of indoor unit (except DDC) and disable remote control when inputting contact control signal. In level emergency stop status, it will not be controllable even if the command is from upper controller.
- ◆ Pattern 3[Level (Operation/Stop)]: Level signal input timing. It changes operation/stop status of all indoor units.
- ◆ Pattern 4[Pulse (Operation/Stop, Disable/Enable)]: Pulse signal. It changes operation/stop status of all indoor units.

4 When pattern is selected, click [Save].



5 When the pop-up window appears, click [OK].

◆ When message with "Reading data from DMS. Please wait" appears saving is completed. Then, 'System Environment Setting' screen appears again with all items disabled.

Note ***Contact point control pattern is set to pattern 1 as factory default.***

CAUTION

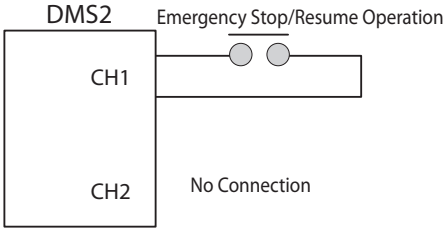
For extension purpose, LonWorks Gateway has total of 10 DI/DO ports. Contact control and output function is assigned to Ch1 and Ch2. Ch3~Ch10 will be assigned to additional functions. For proper contact control, connect with Ch1 and Ch2.

Contact point control pattern

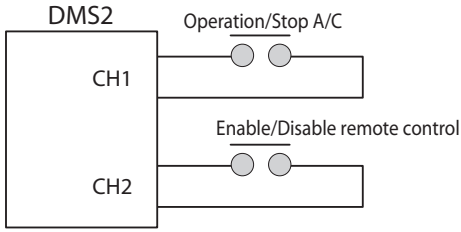
Pattern	Control
Pattern1	▶ No external input (Factory default setting) When you input contact control signal in port 1, there will be no response.
Pattern2	▶ Level input (Emergency stop) 1. If the contact control signal is changed to ON, emergency stop status and all the indoor units are given 'Stop' command, and controlling using remote controller is impossible. 2. During the emergency stop, the DMS2 will ignore any request from the upper controllers. 3. During the emergency stop, the DMS2 will ignore previously set schedules. 4. When the contact control signal changes from ON to OFF, DVM goes into normal operation status and returns to the remote control status before emergency stop. 5. Even if the contact control signal of port 1 changes from ON to OFF, there will be no change to the indoor unit. 6. When you input contact control signal in port 2, there will be no response.
Pattern3	▶ Level input (Operation/Stop, Remote control Enable/Disable) 1. If the contact signal of port 1 changes from OFF to ON, all indoor units will be given 'Operation' command. 2. If the contact signal of port 1 changes from ON to OFF, all indoor units will be given 'Stop' command. 3. If the contact signal of port 2 is OFF, you cannot control all indoor units using remote controller. 4. If the contact signal of port 2 changes from OFF to ON, you can control all indoor units using remote controller. 5. If the contact signal of port 2 changes from ON to OFF, you cannot control all indoor units using remote controller. 6. Control command from the upper controller will be operated regardless of the contact point status. 7. DVM system control using Schedule control will be operated regardless of the contact point status.
Pattern4	▶ Pulse input (Operation/Stop) 1. Valid pulse duration for input signal is 0.5~1.0 second. DMS2 ignores the signal which has shorter than 0.5 second duration, longer than 1.0 second Pulse width. 2. When Pulse input signal is ON in Port 1. all indoor units will be given 'Operation' command. 3. When Pulse input signal is ON in Port 2. all indoor units will be given 'Stop' command. 4. DVM control command from the upper controller will be operated regardless of Pulse input signal. 5. DVM system control using Schedule control will be operated regardless of Pulse input signal.

DI(Digital Input) Circuitry according to Control Switch Pattern

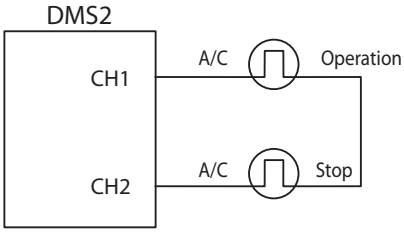
- Pattern 2 (May be used for connection with a fire sensor)



- Pattern 3 (External contact signal control)



- Pattern 4 (Pulse signal control)



Tracking

◆ **What is tracking?**

Tracking is an operation that finds devices connected to LonWorks Gateway.
Through tracking operation, devices will be recognize if they are connected to LonWorks Gateway.
To supervise and control system air conditioner using LonWorks Gateway, tracking should be done first.

◆ **Things you can do through tracking**

Checking the number of devices installed, setting communication mode for each channel, DVM tracking, Renaming and setting ports is possible through tracking.

◆ **Execute tracking**

(1) Connect DVM device to COM1~COM5.

(2) Set communication mode for each channel.
- Set proper communication mode which fits to the devices connected in step (1).
- Be aware that if communication mode is not properly set, the device may not be found through tracking.

(3) Execute tracking - Execute DVM tracking.
- DVM tracking is an operation that finds system air conditioner devices such as indoor/outdoor unit and watt-hour meter.

(4) Setting name for each device.
- You can set name for connected device. Set the names to help you recognize the location of the device easily.

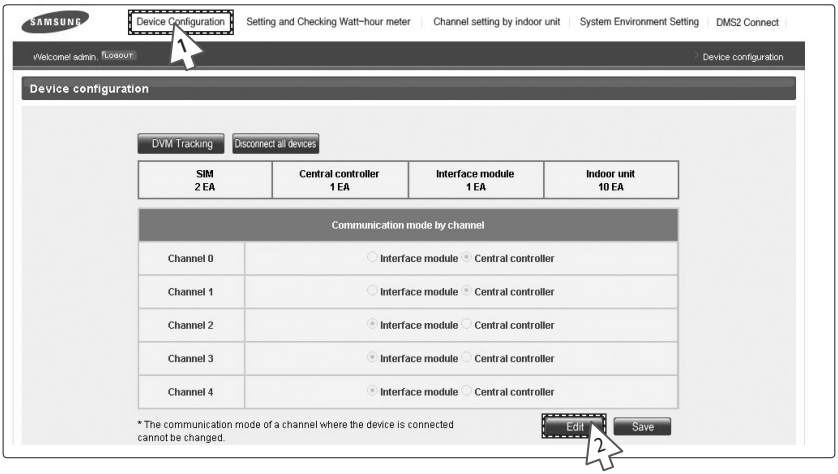
◆ **Communication mode setting for each channel**

Roles
- It records what devices are connected to COM1~ COM5 of LonWorks Gateway.
- Through tracking, LonWorks Gateway searches proper devices that fits to user's setting.
- Select proper communication mode which fits to connected device.

What is communication mode?
- Interface module, centralized controller, SIM interface modules and Watt-hour meter interface modules can be connected to LonWorks Gateway.
- LonWorks Gateway can use only the device assigned for each COM port.
- Communicational devices by communication mode is as follows.

▶ Interface module : Interface module, SIM interface modules, Watt-hour interface modules.
▶ Centralized controller mode : Centralized controller, SIM interface modules, Watt-hour interface modules.

Setting communication mode for each channel

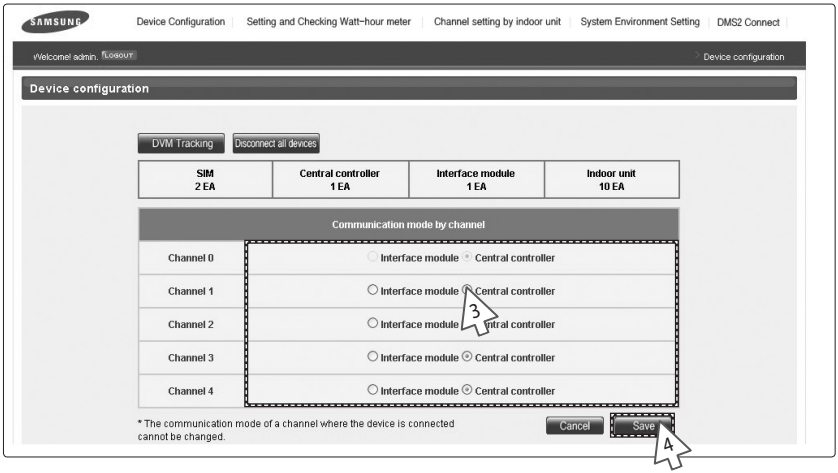


1 Click [Device Configuration].

2 Click [Edit] from the 'Communication mode by channel' screen.

- ◆ [Edit] button will be switched to [Cancel].
- ◆ All selection buttons will be enabled. However, the channels with searched device maintain its button in disabled status.

Tracking (Continued)



3 When each channel is enabled, check the communication mode you want to set for each channel.

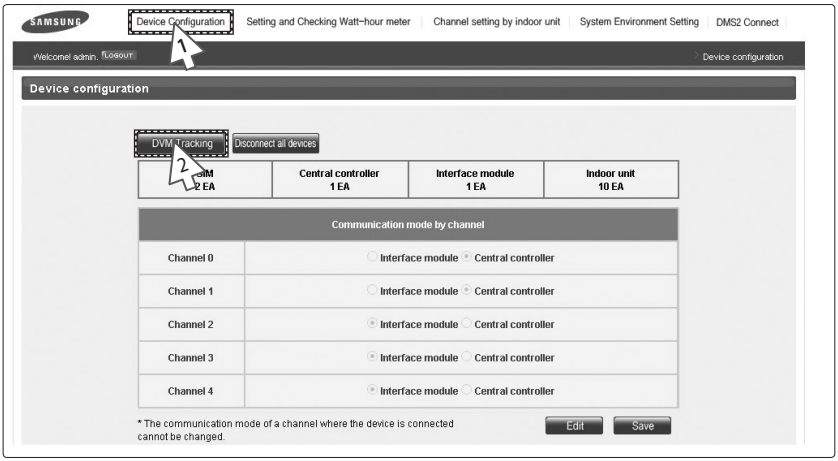
- ◆ You cannot change the communication mode of channel which has currently connected device.
- ◆ If you set interface module as communication mode, tracking/monitoring/ controlling interface module and SIM interface module is possible.
- ◆ If you set centralized controller as communication mode, tracking/monitoring/ controlling centralized controller and SIM interface module is possible.

4 Click [Save] after setting is completed.

- ◆ If you click [Cancel], check boxes will be disabled and [Cancel] button will switch to [Edit].

5 When message with "Reading data from DMS. Please wait" appears saving is completed. Then, 'System Environment Setting' screen appears again with all items disabled.

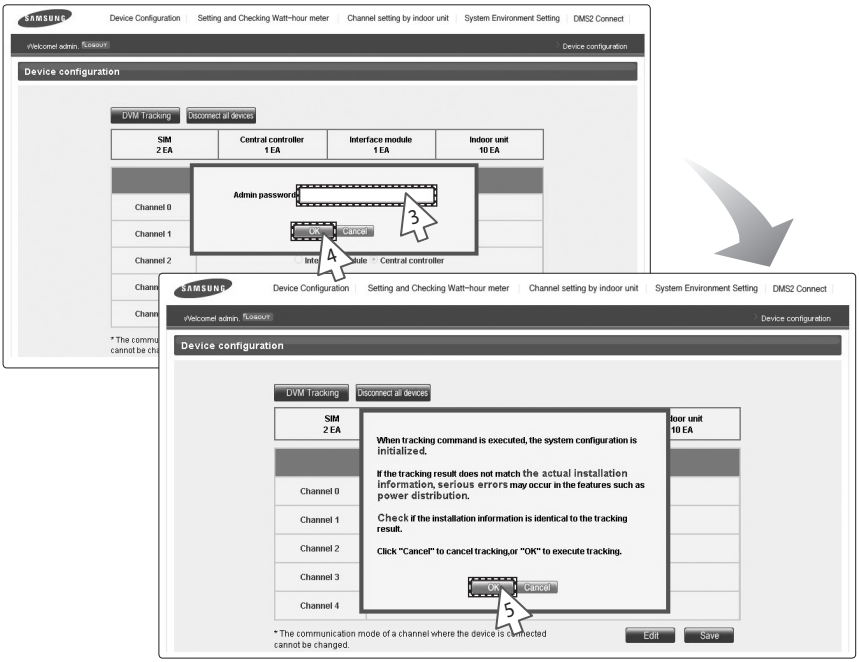
DVM Tracking



1 Click [Device Configuration].

2 Click [DVM Tracking].

Tracking (Continued)



3 Enter administrator's password.

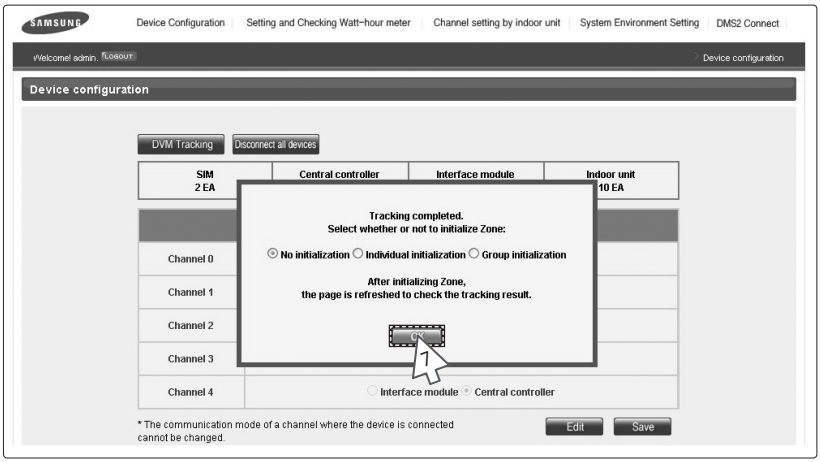
4 Click [OK].

5 When tracking information window pops up, check it and click [OK] to continue.

- ◆ Tracking will be executed regarding on the communication mode set from 'Communication mode by channel' section.
  - ▶ Channels with communication mode set to Interface module, tracking will be executed on the interface modules within range of D0~DF and SIM interface modules.
  - ▶ Channels with communication mode set to Centralized controller, tracking will be executed on centralized controller and SIM interface module.

6 Pop-up window with message "Tracking is in progress. Please wait." will appear.

- ◆ Tracking takes from few seconds to 3 minutes. However, it may vary depending on the number of installed controllers.



7 Message will appear to alert that tracking is completed. Select the zone initializing mode and click [OK].

- ◆ No initialization: No zone information initialization will be made.
- ◆ Individual initialization: Initialize zone information as individual mode.
- ◆ Group initialization: Initialize zone information as group mode.

8 Page will be refreshed by clicking [OK]. Then you can check the tracking result.

Note

- ◆ ***If tracking is executed successfully with interface module set for communication mode setting for each channel, virtual centralized controller will be assigned to each channel.***
- ◆ ***For the address of the virtual centralized controller, Channel 0 will be set to 11, Channel 1 to 12, Channel 2 to 13, channel 3 to 14 and channel 4 to 15.***
- ◆ ***If there is existing communication channel for interface module, tracking for centralized controller will be limited to range of 0 ~ 10.***
- ◆ ***If there is no searched interface modules, centralized controllers or SIM interface modules, it is regarded as DVM tracking failure.***
- ◆ ***If there are devices which have same address, only first searched device will be registered.***
- ◆ ***The number of centralized controller contains the number of virtual centralized controller which is used in interface module communication.***
- ◆ ***The number of indoor unit contains the number of indoor unit, ERV and AHU kit.***

CAUTION

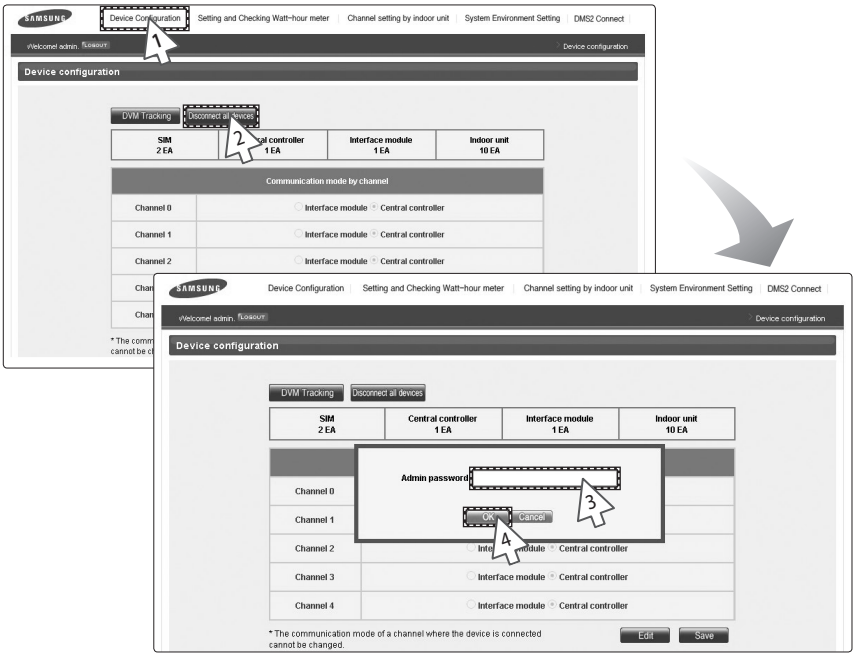
- ◆ ***If you execute tracking, system setting will be initialized.***
- ◆ ***If tracking result does not match with actual installation information, there can be critical error in additional functions such as power distribution.***
- ◆ ***Make sure that tracking information matches to actual installation information after tracking.***

Disconnect all devices

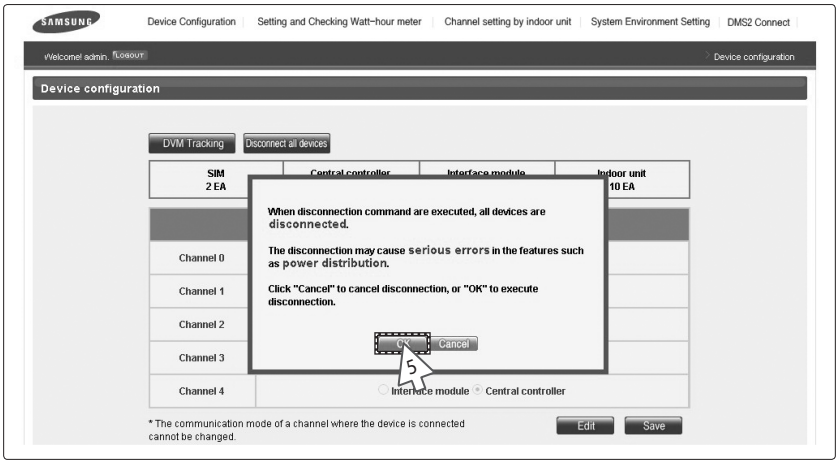
Function

Initialize searched device status in LonWorks Gateway.
Monitoring and controlling of all the connected devices to LonWorks Gateway will be stopped when you use this function.

- ◆ Connect searched device to the other channel and execute tracking. If the other device is searched in the channel you want to use, use 'Disconnect all devices'function.
- ◆ If you use this function, LonWorks Gateway device connection status will be initialized.



1	Click [Device Configuration].
2	Click [Disconnect all devices].
3	Enter administrator's password.
4	Click [OK].



5 When the information window pops up, you must check the information and click [OK] to continue.

6 When message with "Reading data from DMS. Please wait" appears and all the devices are disconnected, page will be refreshed.

Note

- ◆ ***After executing 'Disconnect all device function', device search status of LonWorks Gateway will be initialized.***
- ◆ ***You should execute tracking again after using disconnect all devices function.***

Checking and changing the Object ID

List of equipment connected to LonWorks can be checked when the tracking is completed.

1 Device Type, Address, Name and Object ID will appear.

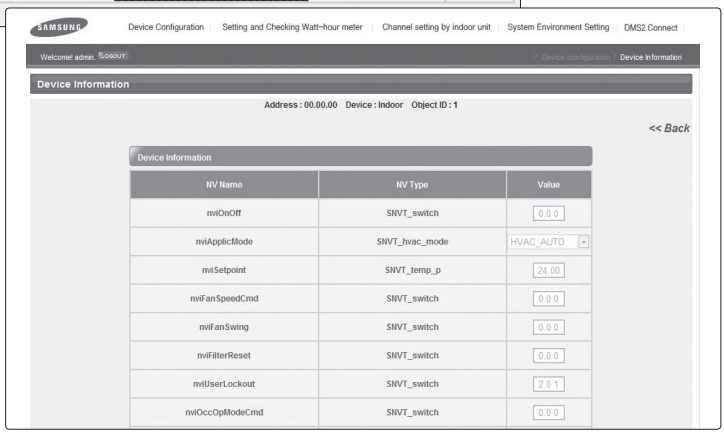
2 Object IDs are assigned in order from 1 to 128 when initial tracking is executed.

3 If you want to change the Object ID, click [Edit] and change the Object ID of the applicable device.

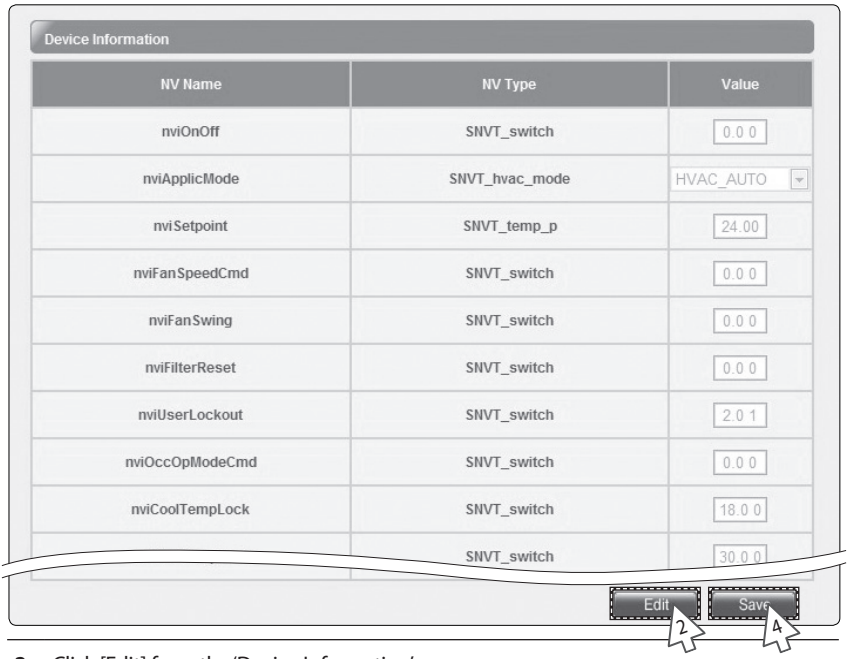
- ◆ The Object ID can not be used for more than one piece of device.
- ◆ Object ID can be entered between 1 ~ 128.
- ◆ Device without an Object ID can not transfer its information to LonWorks.
- ◆ Object ID does not appear if there are more than 128 indoor units.

Checking device information

Channel	Device	Address	Name	ObjectID
CH0	Central controller	00	중앙제어기-00	
	Interface module	00.00		
	Indoor unit	00.00.00 (00)	00.00.00	1
	Indoor unit	00.00.01 (01)	00.00.01	2
	Indoor unit	00.00.02 (02)	00.00.02	3
	Indoor unit	00.00.03 (03)	00.00.03	4
	Indoor unit	00.00.04 (04)	00.00.04	5
	Indoor unit	00.00.05 (05)	00.00.05	6
	Indoor unit	00.00.06 (06)	00.00.06	7
	Indoor unit	00.00.07 (07)	00.00.07	8
	Indoor unit	00.00.08 (08)	00.00.08	9
	Indoor unit	00.00.09 (09)	00.00.09	10
	Outdoor unit(00.00)	00.00.00	00.00.00	
DMS	DMS DI·DO Setting	56 (System)	DMS DI·DO	



1 Click one of the Addresses from 'Address' colum.
- ◆ Detail information of the selected device will be displayed in device information.
- ◆ User can directly input and change the value of the input type information.



2 Click [Edit] from the 'Device Information' screen.

3 Enter the new value when the input field activates.
- ◆ When entering the new value, enter the value complying with NV type form.
- ◆ New value should be within the allowable range according to NV.
- ◆ Refer to LonWorks Message Definition for the input format and the allowable range.

4 Click [Save] when setting is completed.
- ◆ A. When clicking [cancel], texts become inactive and the [cancel] will be switched to [change].

5 When the message with 'Reading data from DMS. Please wait' and saving is completed, device information page will be displayed again with all the items inactivated.

Note
- ◆ ***The value of the Input item represents the current status of the device. Therefore, value may be different from the final status controlled by LonWorks MMI.***
- ◆ ***Some values cannot be altered depending on their connection to a type of device (Indoor unit, ERV, AHU kit).***

nvoSpaceTemp	SNVT_temp_p	20.00
nvoApplicMonde	SNVT_hvac_mode	HVAC_AUTO
nvoSetpoint	SNVT_temp_p	24.00
nvoOnOff	SNVT_switch	0.0 0
nvoFanSpeed	SNVT_switch	0.0 0
nvoFanSwing	SNVT_switch	0.0 0
nvoErrorCode	SNVT_count	
nvoDeviceAlarm	SNVT_state	
nvoOccOpMode	SNVT_switch	0.0 0
nvoCoolTempLock	SNVT_switch	18.0 0
nvoHeatTempLock	SNVT_switch	30.0 0
nvoEnergyCon_p	SNVT_elec_kwh_l	3456.7
nvoEnergyCon	SNVT_elec_kwh_l	5869.2
nvoRuntime_p	SNVT_time_hour	148
nvoRuntime	SNVT_time_hour	145
nvoDevListDesc	SNVT_str_asc	5117-61_00.00.00_0_000.0 00.0 00_2420

6 Check the current value of the Output.
The current value indicates the current status of indoor unit(ERV) and the value can be different due to synchronization delay with LonWorks MMI and data conversion.

▶ Refer to LonWorks Message Definition for device information display for each device.

◆ Followings are the NV lists of indoor unit(ERV/AHU kit) supported by LonWorks Gateway.
1) nvi type - Data setting is allowed
2) nvo type - Data setting is not allowed
Please refer to Message Definition for Setting value.

1. Indoor Unit(ERV/AHU Kit) Objects

No.	NV Name	NV Type	Remarks
1	nviOnOff	SNVT_switch	ON/OFF command
2	nviApplicMode	SNVT_hvac_mode	Setting operating mode
3	nviSetpoint	SNVT_temp_p	Setting desirable temperature
4	nviFanStatus	SNVT_switch	Setting wind speed and direction
5	nviERVMode	SNVT_count	Setting ERV operation mode
6	nviFilterReset	SNVT_switch	Filter reset command
7	nviUserLockout	SNVT_switch	Setting the restriction of remote control use
8	nviOccOpMode	SNVT_switch	Setting cooling only mode / Setting heating only mode
9	nviCoolTempLock	SNVT_switch	Setting the low temperature limit
10	nviHeatTempLock	SNVT_switch	Setting the high temperature limit
11	nvoSpaceTemp	SNVT_temp_p	Display indoor temperature
12	nvoApplicMode	SNVT_hvac_mode	Display operating mode
13	nvoSetpoint	SNVT_temp_p	Display desire temperature
14	nvoOnOff	SNVT_switch	Display ON/OFF status
15	nvoFanStatus	SNVT_switch	Display wind speed and direction
16	nvoERVMode	SNVT_count	Display ERV operating mode
17	nvoErrorCode	SNVT_count	Display Error code
18	nvoDeviceAlarm	SNVT_state	Remote control Lock, Filter Sign, Thermo ON/OFF, Error occurrence status display
19	nvoOccOpMode	SNVT_switch	Cooling only/Heating only setup status display
20	nvoCoolTempLock	SNVT_switch	Low temperature limit setting status display
21	nvoHeatTempLock	SNVT_switch	High temperature limit setting status display
22	nvoUserLockout	SNVT_switch	Display the restriction of remote control use
23	nvoEnergyConp	SNVT_elec_kwh_l	Display electricity usage (Time Period)
24	nvoEnergyCon	SNVT_elec_kwh_l	Display electricity usage (Basic date)
25	nvoRuntimep	SNVT_time_hour	Display used hours (Period)
26	nvoRuntime	SNVT_time_hour	Display used hours (Basic date)
27	nvoDevListDesc	SNVT_str_asc	The summary of device information (Model, Address, Operation Status)

2. DMS system Objects

No.	NV Name	NV Type	Remarks
1	nviDigitalOut[6]	SNVT_ switch	Control Digital output of DMS
2	nviAllOff	SNVT_hvac_emerg	Control all indoor unit / ERV OFF
3	nvoDigitalOut[6]	SNVT_ switch	Display Digital output status of DMS
4	nvoDigitalIn[8]	SNVT_ switch	Display Digital input status of DMS
5	nvoSystemLock	SNVT_switch	Display System Lock status of DMS
6	nvoDMSAlarm	SNVT_ count	Display communication error of the sub device connected to DMS
7	nvoSystemAlarm	SNVT_ count	

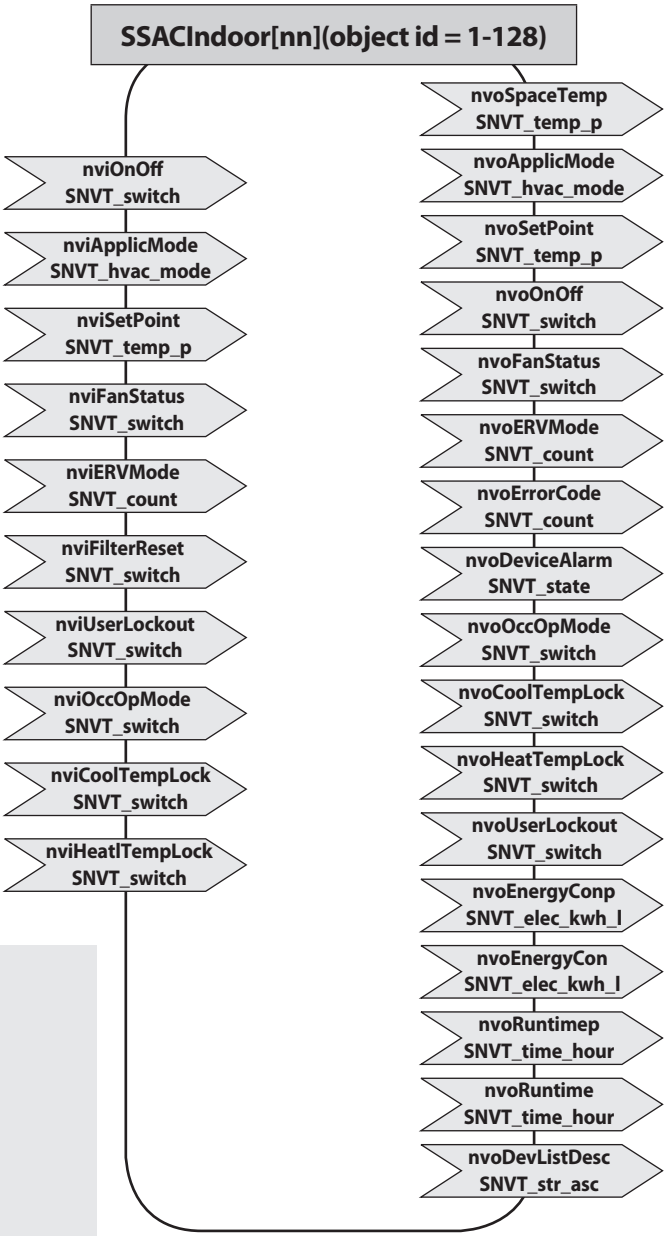
3. Configuration Properties

No.	NV Name	NV Type	Remarks
1	nciSndHrtBt	SNVT_time_sec SCPTmaxSendTime	Send Heartbeat
2	nciMinOutTm	SNVT_time_sec SCPTminSendTime	Minimum Send Time
3	nciMinDeltaTemp	SNVT_temp_p SCPTminDeltaTemp	Min. difference before update
4	nciDelayStatrup	SNVT_time_sec SCPTpwrupDelay	Delay time after a power-up

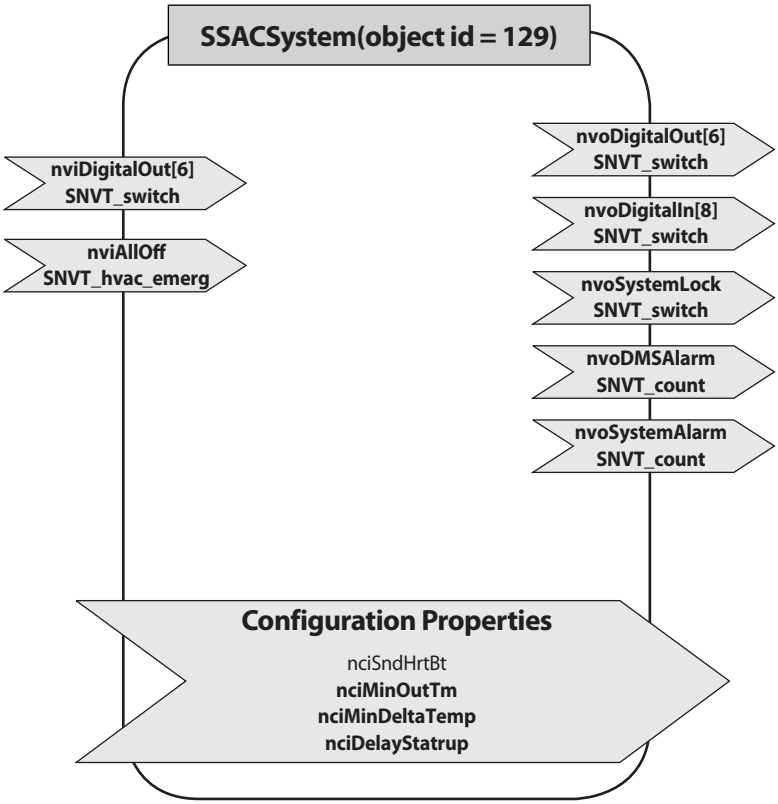
CAUTION

<Unused Network Variables>
The network variable listed below do exist within our XIF file. However, they are not explained in this document. They are exclusively intended for internal testing purpose and should not be used by a user.
- ***nvlVolt***
- ***nvoVoltFb***

Indoor/ERV/AHU kit objects



DMS system objects



Data for Indoor Device

nvoSpaceTemp(11)

Description	Indoor temperature
SNVT Type	SNVT_temp_p: Signed Long, 2 bytes
Value and operation	Range: -10.00°C ~ 50.00°C

nvoApplicMode(12), nviApplicMode(2)

Description	Operation Mode status
SNVT Type	SNVT_hvac_mode: Enumeration(hvac_t)
Value and operation	0: HVAC_AUTO 1: HVAC_HEAT 3: HVAC_COOL 6: HVAC_OFF 9: HVAC_FAN_ONLY 14: HVAC_DEHUMID

❉ Invalid Value: Automatically set as HVAC_AUTO

nvoSetpoint(13), nviSetpoint(3)

Description	Set Temperature
SNVT Type	SNVT_temp_p: Signed Long, 2 bytes
Value and operation	Cool: 18.0°C ~ 30.0°C, Heat: 16.0°C ~ 30.0°C

❉ Invalid Value: Automatically set up as minimum or maximum value.

❉ When setting temperature, only an integer value is applied. A decimal point is ignored.

nvoOnOff(14), nviOnOff(1)

Description	Power ON/OFF status
SNVT Type	SNVT_switch: Unsigned/signed Short
Value and operation	

	Value	State
OFF	0.0	0
ON	100.0	1

nvoFanStatus(15), nviFanStatus(4)

Description	Fan Speed and direction
SNVT Type	SNVT_switch: Unsigned/signed Short
Value and operation	

	Value	State
Auto	0.0	-
Low	1.0	-
Mid	2.0	-
High	3.0	-
Eco	4.0	-
Turbo	5.0	-
Auto	Any>5.0	
Stop	-	0
Up-Down	-	1

❉ Supporting modes are different according to indoor units.
- Indoor unit: Auto, Low, Mid, High
- ERV : Mid, High, Turbo
- AHU Kit: High

* When an indoor unit operation mode is Auto or Dehumid, Fan speed is controlled as 'Auto'.

* When an indoor unit operation mode is FAN ONLY, 'Auto' cannot be controlled by Fan speed.

nvoERVMode(16), nviERVMode(5)

Description	ERV Operation Mode
SNVT Type	SNVT_count: Unsigned Long, 2 bytes
Value and operation	(0: Auto) 1: H/R (2: Air purification) 3: Sleep 4: Normal

❉ ( ) : Function that is not supported now.

nvoErrorCode(17)

Description	Error Code
SNVT Type	SNVT_count: Unsigned Long, 2 bytes
Value and operation	Valid Range: 0 ~ 999 00 00 → No Error Refer to list of Error code

nvoDeviceAlarm(18)

<table>
<tr><td>Description</td><td>1. Remote control restriction status
2. Filter alert status
3. Thermo On/Off status
4. Error alert Status</td></tr>
<tr><td>SNVT Type</td><td>SNVT_state: 16 Unsigned Bitfields</td></tr>
<tr><td>Value and operation</td><td>
<table>
<tr><th>Byte</th><th>Bit8</th><th>Bit7</th><th>Operation</th><th>Remark</th></tr>
<tr><td rowspan="3">Flags_1</td><td>0</td><td>0</td><td>Unlock</td><td rowspan="3">nvoUserLockout</td></tr>
<tr><td>0</td><td>1</td><td>Lever1</td></tr>
<tr><td>1</td><td>0</td><td>Lock</td></tr>
</table>
<table>
<tr><th>Byte</th><th>Bit</th><th>value</th><th>Operation</th><th>Remark</th></tr>
<tr><td rowspan="6">Flags_2</td><td rowspan="2">2</td><td>0</td><td>No alarm</td><td rowspan="2">nvoFilterAlarm</td></tr>
<tr><td>1</td><td>Alarm</td></tr>
<tr><td rowspan="2">1</td><td>0</td><td>Thermo Off</td><td rowspan="2">Thermo On/Off</td></tr>
<tr><td>1</td><td>Thermo On</td></tr>
<tr><td rowspan="2">0</td><td>0</td><td>No Error</td><td rowspan="2">nvoErrorCode</td></tr>
<tr><td>1</td><td>Error</td></tr>
</table>
</td></tr>
</table>

nvoOccOpMode(19), nviOccOpModeCmd(8)

<table>
<tr><td>Description</td><td>Operation Mode restriction</td></tr>
<tr><td>SNVT Type</td><td>SNVT_switch: Unsigned/singed Short</td></tr>
<tr><td>Value and operation</td><td>
<table>
<tr><th></th><th>Value</th><th>State</th></tr>
<tr><td>Unlock</td><td>0.0</td><td>0</td></tr>
<tr><td>Cool only</td><td>1.0</td><td>1</td></tr>
<tr><td>Heat only</td><td>2.0</td><td>1</td></tr>
</table>
</td></tr>
</table>

nvoCoolTempLock(20), nviCoolTempLock(9)

<table>
<tr><td>Description</td><td>Setting/monitoring Lower limit temperature and function toggle</td></tr>
<tr><td>SNVT Type</td><td>SNVT_switch: Unsigned/singed Short</td></tr>
<tr><td>Value and operation</td><td>
<table>
<tr><th>Operation</th><th>Value</th><th>State</th></tr>
<tr><td>Unlock</td><td>18.0 ~ 30.0</td><td>0</td></tr>
<tr><td>Lock</td><td>18.0 ~ 30.0</td><td>1</td></tr>
</table>
Cool: 18.0°C ~ 30.0°C
</td></tr>
</table>

nvoHeatTempLock(21), nviHeatTempLock(10)

Description	Setting/monitoring upper limit temperature and function toggle
SNVT Type	SNVT_switch: Unsigned/signed Short
Value and operation	<table><tr><th>Operation</th><th>Value</th><th>State</th></tr><tr><td>Unlock</td><td>16.0 ~ 30.0</td><td>0</td></tr><tr><td>Lock</td><td>16.0 ~ 30.0</td><td>1</td></tr></table> Heat: 16.0℃ ~ 30.0℃

nvoEnergyConp(23)

Description	Electric consumption value within the period
SNVT Type	SNVT_elec_kwh_l: Signed Quad, 4bytes
Value and operation	Raw range: 0 ~ 999999 Resolution: 0.1

nvoEnergyCon(24)

Description	Electric consumption value after baselin
SNVT Type	SNVT_elec_kwh_l: Signed Quad, 4bytes
Value and operation	Raw range: 0 ~ 999999 Resolution: 0.1

nvoRunTimep(25)

Description	Indoor unit usage within the period
SNVT Type	SNVT_time_hour: Signed Long, 2bytes
Value and operation	Raw range: 0 ~ 65535

nvoRunTime(26)

Description	Indoor unit usage after baseline
SNVT Type	SNVT_time_hour: Signed Long, 2bytes
Value and operation	Raw range: 0 ~ 65535

❉ Energy consumption and Runtime are the accumulated value during the user setting period.

❉ The data above is for reference so you can not use them for official billing.

nviFilterReset(6)

Description	Filter alert reset
SNVT Type	SNVT_switch: Unsigned/singed Short
Value and operation	Value / State / Operation / remark 0.0 / 0 / No Action / 100.0 / 1 / Filter Reset /

nviUserLockout(7), nvoUserLockout(22)

Description	Remote control restriction
SNVT Type	SNVT_switch: Unsigned/singed Short
Value and operation	Value / State / Operation / remark 0.0 / 0 / Unlock / 100.0 / 1 / Level 1 / 100.0 / 2 / Lock /

nvoDevListDesc(27)

Description	Device Information
SNVT Type	SNVT_str_asc: Unsigned Character Array, 31bytes
Value and operation	Refer to Expansion of nvoDevListDesc

Expansion of nvoDevListDesc

		desription	character	value
ascii.	[0]	Model information	Alphabet or digit	
	[1]		Alphabet or digit	
	[2]		Alphabet or digit	
	[3]		Alphabet or digit	
	[4]		Alphabet or digit	
	[5]		Alphabet or digit	
	[6]	Separator	Underbar(_)	095
	[7]	Centralized controller address	Alphabet or digit	
	[8]		Alphabet or digit	
	[9]	Separator	Period(.)	046
	[10]	Interface Module address	Alphabet or digit	
	[11]		Alphabet or digit	
	[12]	Separator	Period(.)	046
	[13]	Indoor Unit Address	Alphabet or digit	
	[14]		Alphabet or digit	
	[15]	Separator	Underbar(_)	095
	[16]	Unit type	0: indoor unit, 1: AHU, 2: ERV	
	[17]	Separator	Underbar(_)	095
	[18]	Operation mode	DMS Format 0: Auto, 1: Cool, 2: Dehumid, 3: Fan, 4: Heat	
	[19]	ON/OFF	0, 1	
	[20]	Fan speed	0, 1, 2, 3, 4, 5	
	[21]	Fan Swing	0, 1	
	[22]	Error	0, 1	
	[23]	Separator	Underbar(_)	095
	[24]	setPoint temperate	Second significant digit	
	[25]		First significant digit	
	[26]		First decimal place	
	[27]	Space temperate(*)	Second significant digit	
	[28]		First significant digit	
	[29]		First decimal place	
	[30]	Null padding	0	048

(*) If the value is a negative number, it is displayed as sign, 10-digit, single-digit.

Data for DMS System

nvoDigitalOut(3), nviDigitalOut(1)

Description	Digital output status on DMS
SNVT Type	SNVT_switch: Unsigned/singed Short
Value and operation	<table><tr><td></td><td>Value</td><td>State</td></tr><tr><td>OFF</td><td>0.0</td><td>0</td></tr><tr><td>ON</td><td>100.0</td><td>1</td></tr></table>

nvoDigitalIn(4)

Description	Digital Input status on DMS
SNVT Type	SNVT_switch: Unsigned/singed Short
Value and operation	<table><tr><td></td><td>Value</td><td>State</td></tr><tr><td>OFF</td><td>0.0</td><td>0</td></tr><tr><td>ON</td><td>100.0</td><td>1</td></tr></table>

nvoSystemLock(5)

Description	System lock status of DMS(only monitoring available)
SNVT Type	SNVT_switch: Unsigned/singed Short
Value and operation	<table><tr><td></td><td>Value</td><td>State</td></tr><tr><td>Unlock</td><td>0.0</td><td>0</td></tr><tr><td>Lock</td><td>100.0</td><td>1</td></tr></table>

nvoDMSAlarm(6)

Description	DMS Alarm
SNVT Type	SNVT_count : Unsigned Long, 2 bytes
Value and operation	0 : Normal 8 : Emergency stop 105 : Tracing in progress 108 : Tracking failed 109 : Lon Module ↔ DMS2 communication Error 110 : Object ID Update

nvoSystemAlarm(7)

Description	SIM/PIM Communication Error Code
SNVT Type	SNVT_count: Unsigned Long, 2 bytes
Value and operation	SIM/PIM Communication Error Refer to list of Error code

nviAllOff(2)

Description	All indoor units turn off
SNVT Type	Enumeration, emerg_t
Value and operation	0 : EMERG_NORMAL 4 : EMERG_SHUTDOWN

Configuration Properties

Overview

This document provides information on all configuration properties defined for LonWorks Gateway device. For the sake of simplicity, although the configuration properties are defined to UFPTSSACSystem functional block, they are shared among the members of UFPTSSACIndoor functional blocks.

Configuration Properties Table

No	CPNV Name	SCPT Reference	SNVT Type	Resolution
1	nciSndHrtBt	SCPTmaxSendTime	SNVT_time_sec	0.1
2	nciMinOutTm	SCPTminSendTime	SNVT_time_sec	0.1
3	nciMinDeltaTemp	SCPTminDeltaTemp	SNVT_temp_p	0.01
4	nciDelayStartup	SCPTpwrUpDelay	SNVT_time_sec	0.1

Details of Configuration Properties

Send Heartbeat

This configuration property defines the maximum period of time that expires before the specified network variable outputs will automatically be updated. The associated network variable will also be transmitted as a heartbeat output on a regular basis as dictated by the Maximum Send Time (nciSndHrtBt) configuration value.

Valid Range
The valid range is any value between 0.0 sec and 6,553.4 sec. Setting nciSndHrtBt = 0.0 (default value) disables the Send Heartbeat mechanism.

Recommendations
If required, especially in an event-driven update for monitoring, set a value greater than the default update rate (currently, 10s).

Associate Values
nvoDMSAlarm, nvoSystemAlarm.

Minimum Send Time

This configuration property defines the minimum period of time between automatic network variable output transmissions. The associated network variable will be updated no faster than the Minimum Send Time (nciMinOutTm) configuration value.

Valid Range
The valid range is any value between 0.0 sec and 6,553.4 sec. Setting nciMinOutTm = 0.0 (default value) disables the Minimum Send Time mechanism.

Recommendations
If required, set a value greater than the default update rate (currently, 10s). Any smaller value does not yield a change in the update pattern.

Associate Values
nvoSpaceTemp, nvoSetPoint

Minimum Temperature Change

This configuration property sets the minimum temperature change required before the associated output network variable is updated. The associate network variable will not be updated unless the change is greater than or equal to the Minimum Temperature Change (nciMinDeltaTemp) configuration value.

Valid Range
The valid range is any value between -273.17°C and 327.66°C. Setting nciMinDeltaTemp = 0.0 (default value) disables the Minimum Temperature Change mechanism.

Recommendations
If required, set a value greater than 0.1 degree in Celsius. Also, consider the maximum of the typical operating range which is 50 degree in Celsius.

Associate Values
nvoSpaceTemp, nvoSetPoint

Start-Up Delay

This configuration property controls the minimum period of time that expires before outputs are retransmitted. It also is the minimum amount of elapsed time after a power-up or re-establishment of communications before a control action takes place. This can be used to account for the settle-down time of a network.

All of the output network variable will be updated no faster than the Start-Up Delay (nciDelayStartup) configuration value. Also, the heartbeat mechanism will not be enabled unless the elapsed time passes the Start-Up Delay, if used.

Valid Range
The valid range is any value between 0.0 sec and 6,553.4 sec. Setting nciDelayStartup = 0.0 disables the Start-Up Delay mechanism.

Associate Values
All output network variables

Recommendations
If required, set a value greater than 1 minute which is a settle-down time of the installed device.

Memo